



TITLE:

Inter-university Upper atmosphere Global Observation NETwork (IUGONET) - Metadata Database for Upper Atmosphere

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Inter-university Upper atmosphere Global Observation NETwork (IUGONET) - Metadata Database for Upper Atmosphere -

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4. SERC, Kyusyu Univ.,
5. STE Lab., Nagoya Univ., 6. NIPR,
7. PPARC, Tohoku Univ.

Purposes of this 6-year (2009-2014) project are:

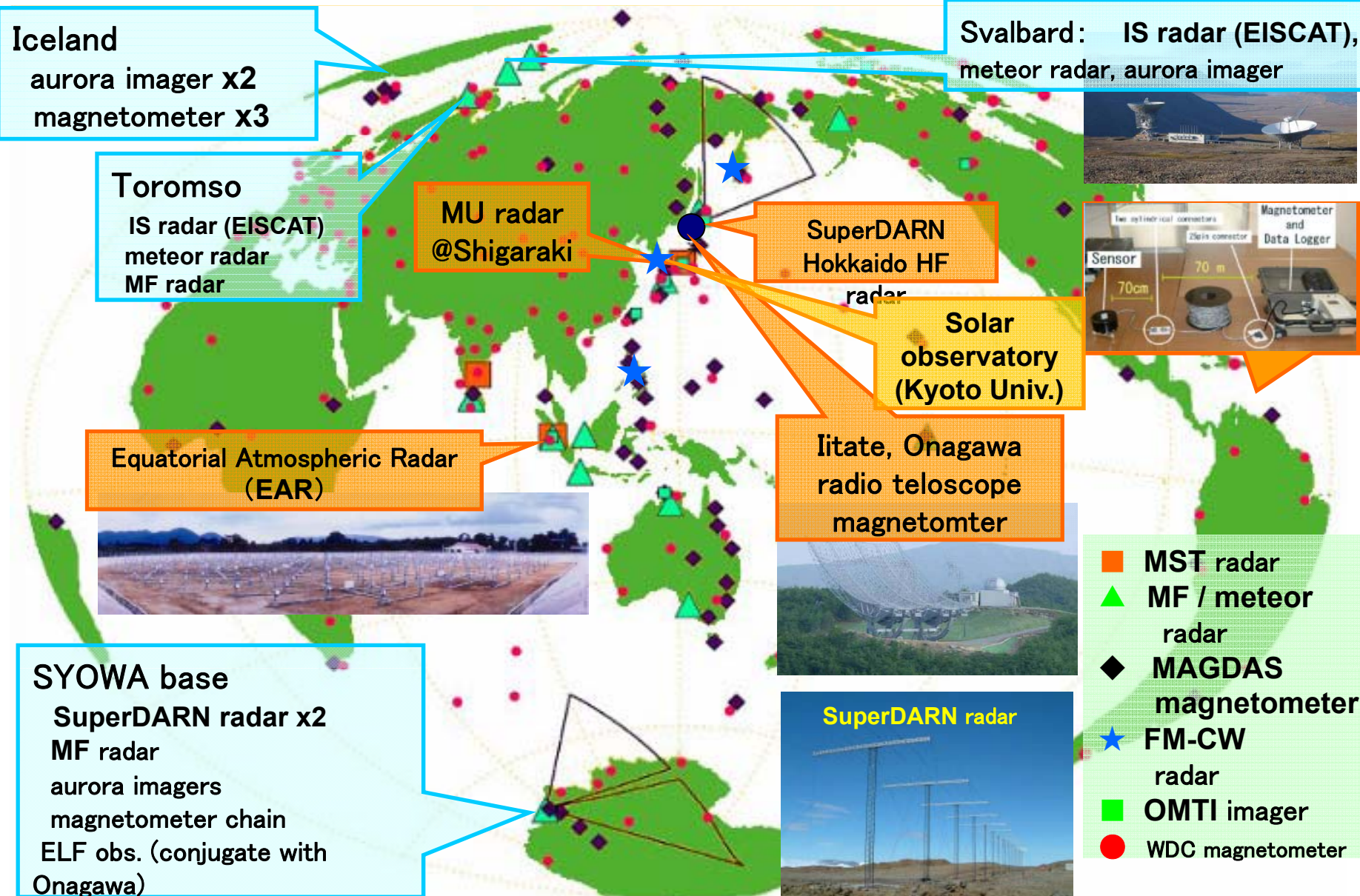
- to develop a metadata database (DB) of the upper atmosphere (UA) data by ground-based observation accumulated over 50 years since IGY by Japanese universities/institutes.
- to promote effective use of the observational data spread across the institutes/universities, which leads to interdisciplinary, comprehensive studies of the UA.
- to investigate mechanism of long-term variation in the UA

**This project is supported by Special Educational Research Budget (Research Promotion), MEXT, Japan*

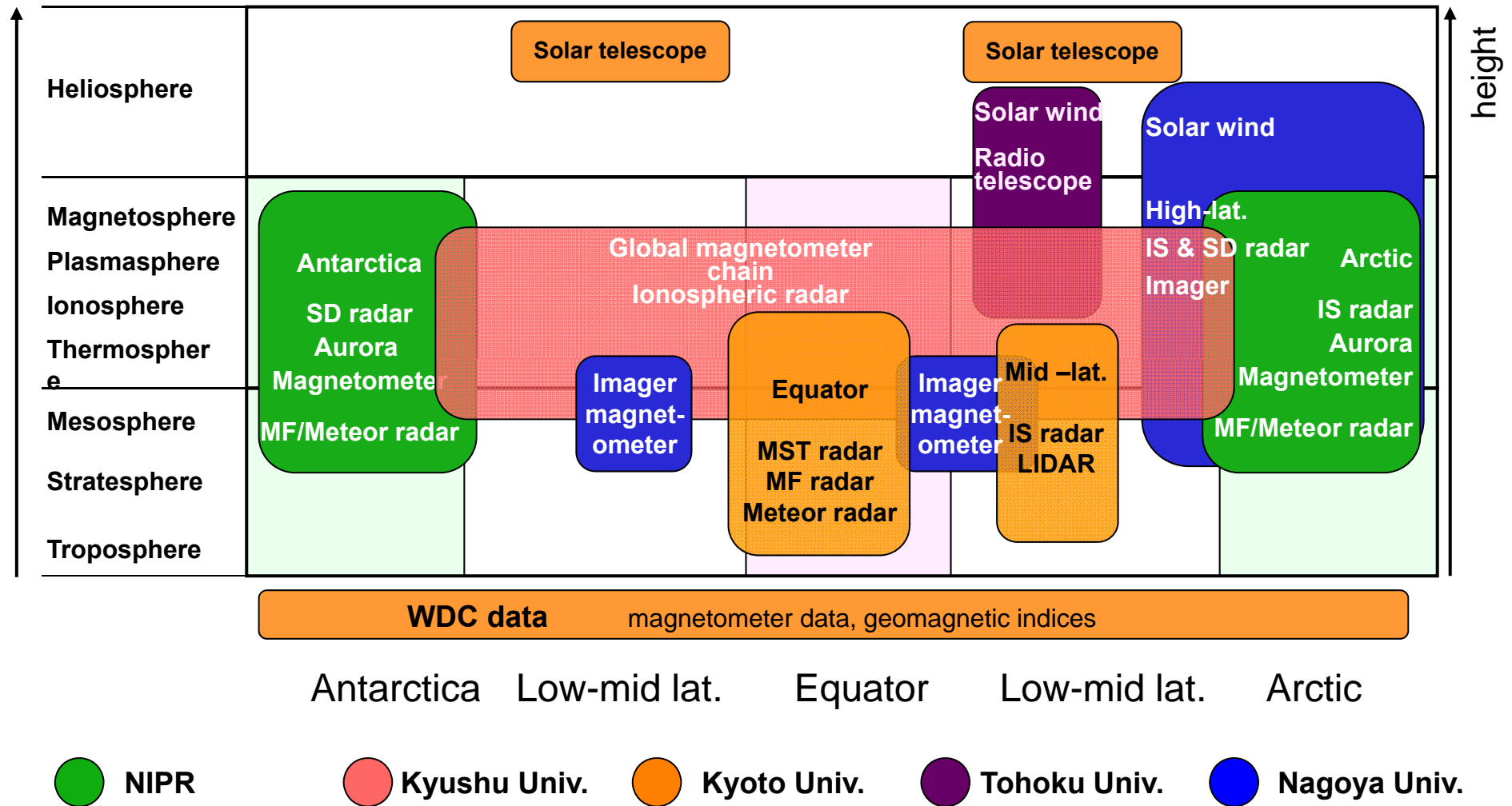
Participating universities and research institutes

- Planetary Plasma and Atmospheric Research Center, [Tohoku University](#)
- [National Institute of Polar Research](#)
- Solar Terrestrial Environment Laboratory, [Nagoya University](#)
- Research Institute for Sustainable Humanosphere, [Kyoto University](#)
- World Data Center for Geomagnetism, [Kyoto University](#)
- Kwasan and Hida Observatories, [Kyoto University](#)
- Space Environment Research Center, [Kyushu University](#)

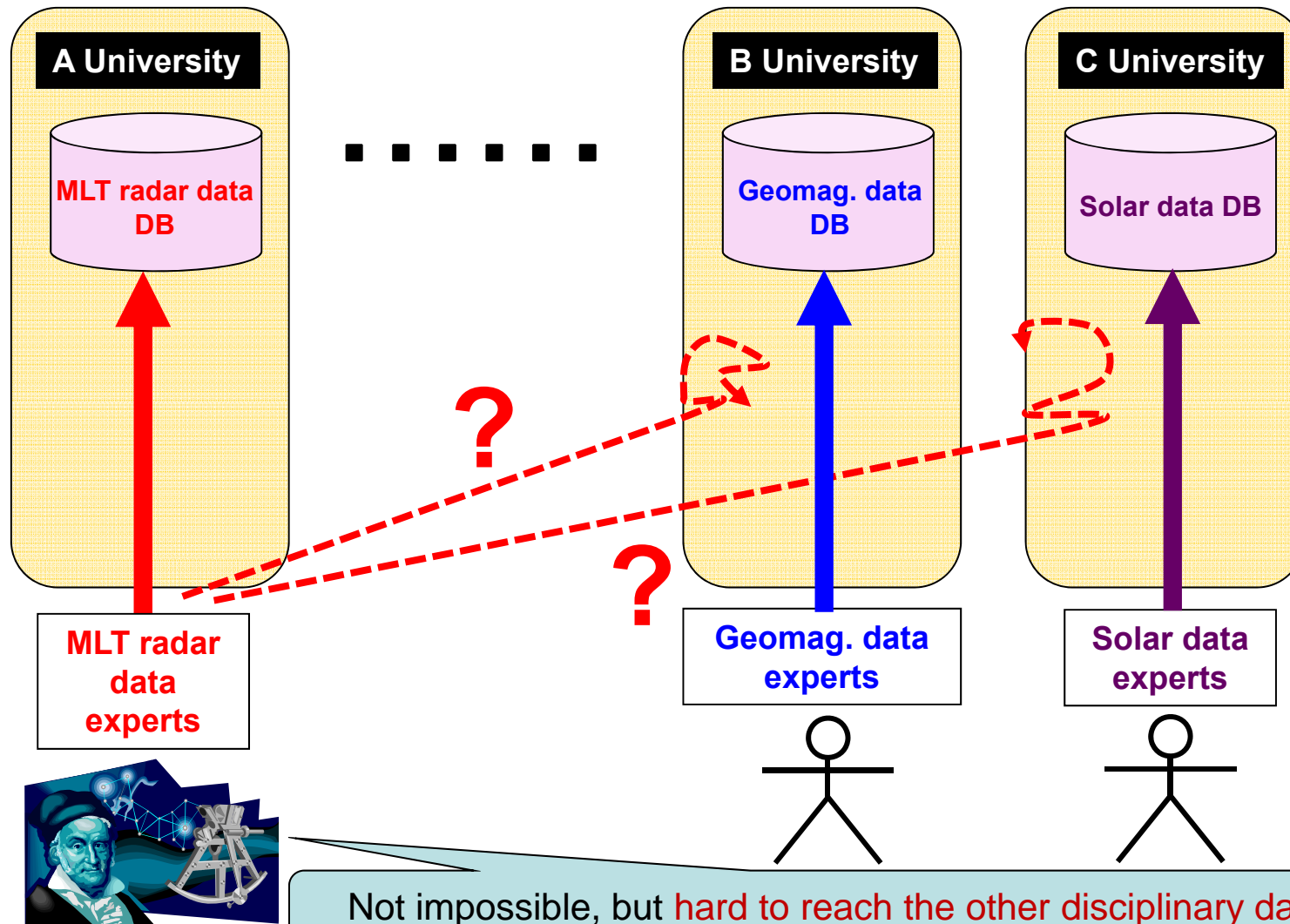
Observations by IUGONET institutions



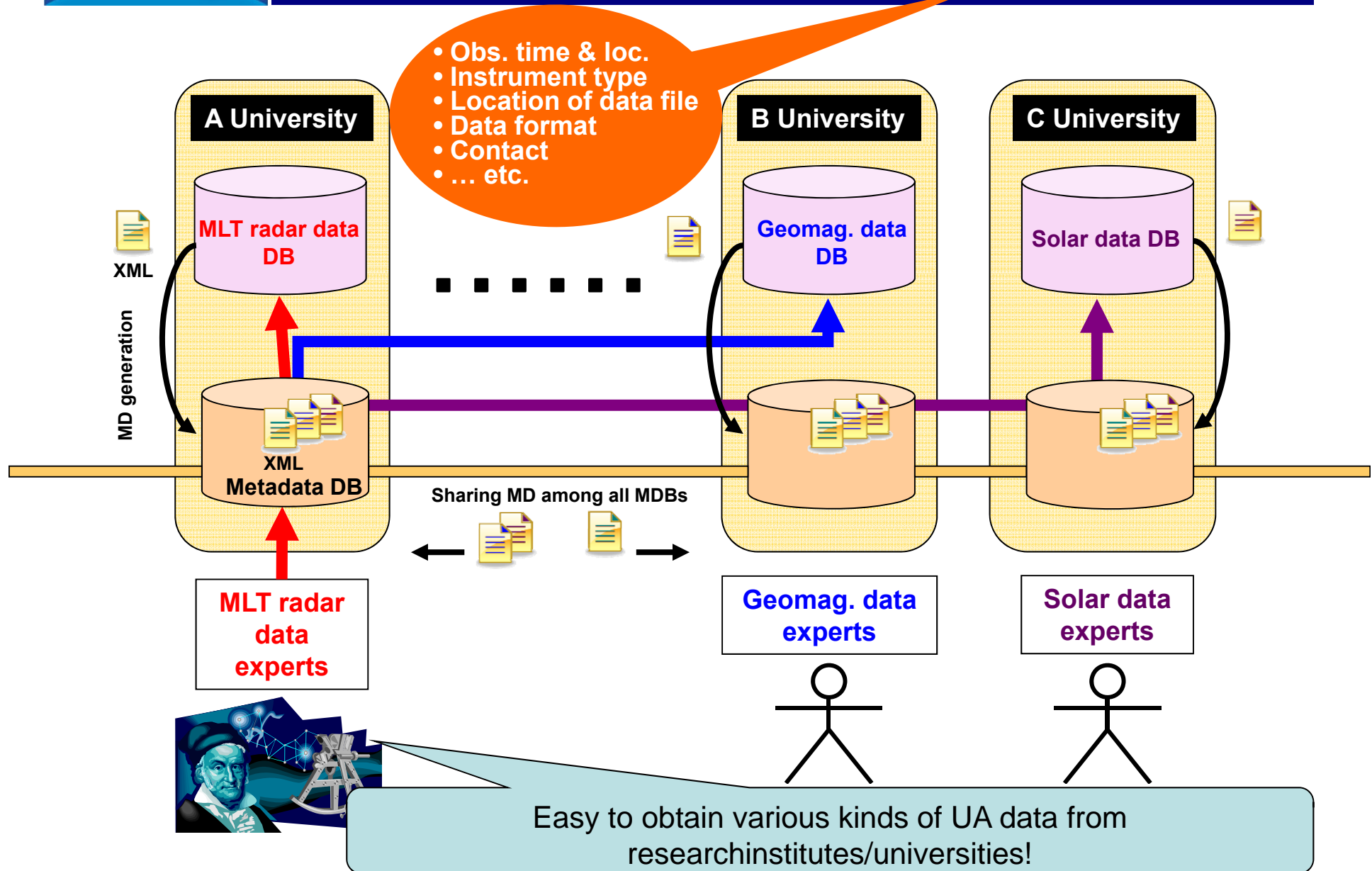
Altitude coverage of observations



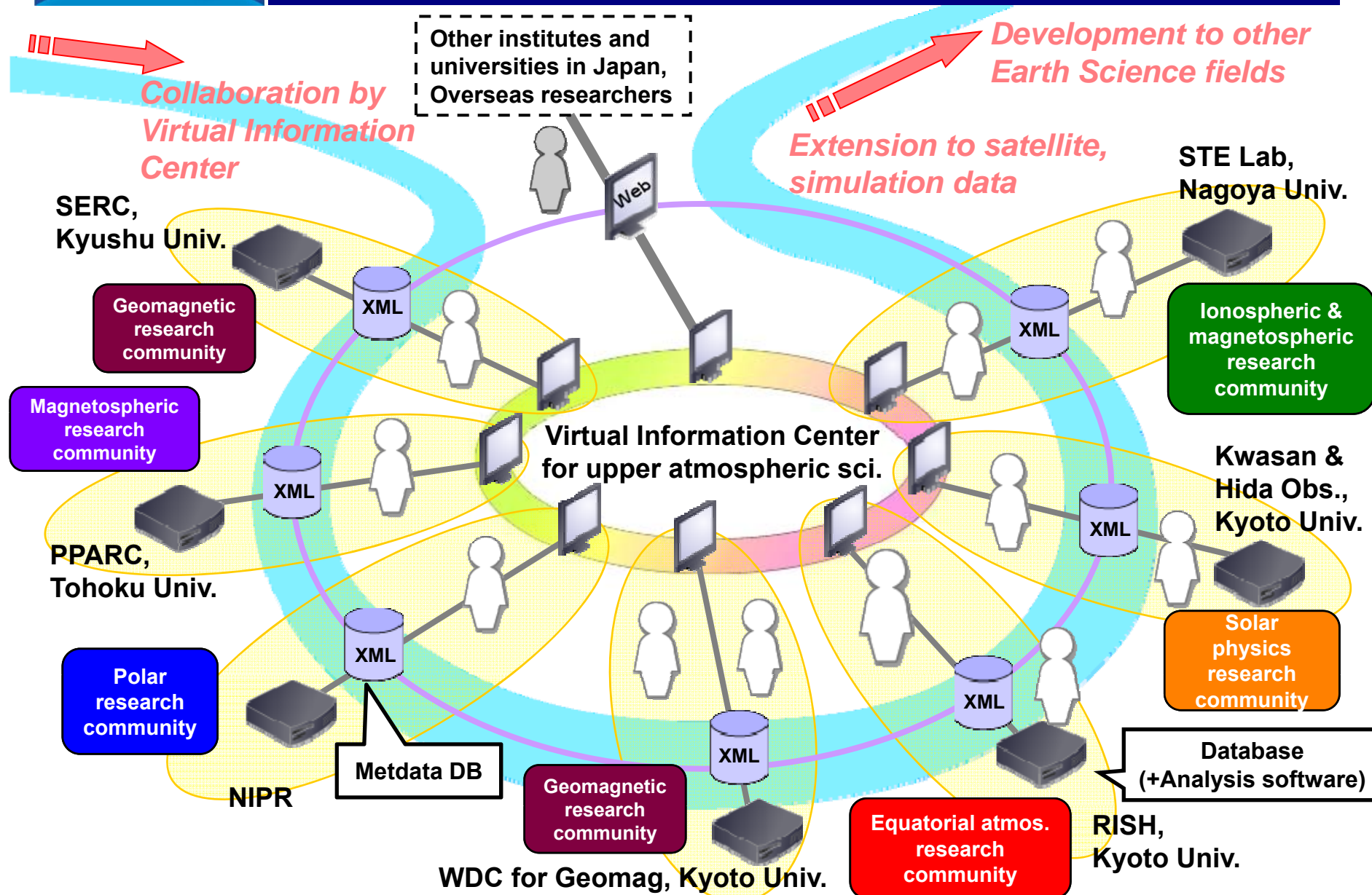
Problem with databases



Database access through metadata DB



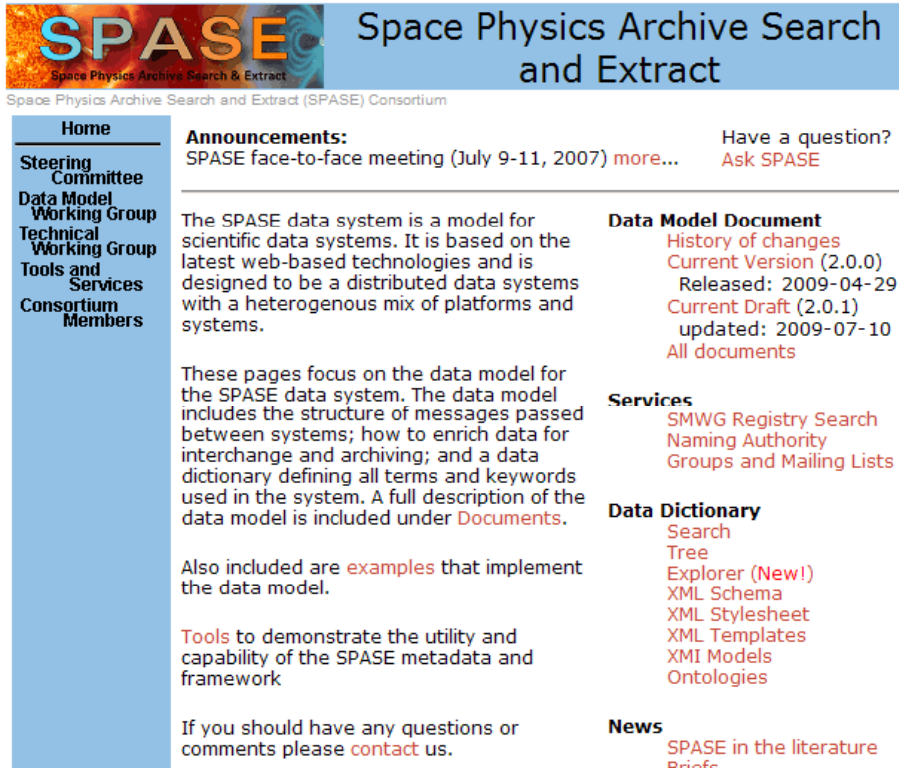
Project Schematic



Task	Y2009	Y2010	Y2011	Y2012	Y2013	Y2014	Detail
Virtual information center (VIC) of UA studies	System installation	Normal operation		System update			Construct the integrated research environment (TV-conference system, ..)
Development of metadata DB system	Prototype system devel.	Regular system devel.	Open to public				Design and develop the metadata DB system
Design the Metadata format standards	Ver.1 format	Update & document					Release the format ver.1 and keep updating if necessary
Development of data analysis software	Specifications and basic design	Programming	Open to public				Develop and release analysis softwares for UA data
Maintenance&extension of existing DBs of Observation data		Maintenance of obs. DBs & exam. of non-digital dataset		Effort focused on old data from Y2012 on			Incorporate non-DB'd data into the DBs
Metadata generation		Collecting metadata from each obs. DB		Effort focused on old data from Y2012 on			Generate metadata in the designated format and add to metadata DB
Operation of metadata DB							Release the metadata DB for community
VIC extension to related fields							Wrap up the project and discuss further extension

IUGONET metadata format = SPASE + modifications

(<http://www.spase-group.org>)



SPASE Space Physics Archive Search and Extract

Space Physics Archive Search and Extract (SPASE) Consortium

Home

Announcements:
SPASE face-to-face meeting (July 9-11, 2007) [more...](#)

Have a question?
[Ask SPASE](#)

The SPASE data system is a model for scientific data systems. It is based on the latest web-based technologies and is designed to be a distributed data systems with a heterogeneous mix of platforms and systems.

These pages focus on the data model for the SPASE data system. The data model includes the structure of messages passed between systems; how to enrich data for interchange and archiving; and a data dictionary defining all terms and keywords used in the system. A full description of the data model is included under [Documents](#).

Also included are [examples](#) that implement the data model.

[Tools](#) to demonstrate the utility and capability of the SPASE metadata and framework

If you should have any questions or comments please [contact](#) us.

Data Model Document
[History of changes](#)
[Current Version \(2.0.0\)](#)
Released: 2009-04-29
[Current Draft \(2.0.1\)](#)
updated: 2009-07-10
[All documents](#)

Services
[SMWG Registry Search](#)
[Naming Authority](#)
[Groups and Mailing Lists](#)

Data Dictionary
[Search](#)
[Tree](#)
[Explorer \(New!\)](#)
[XML Schema](#)
[XML Stylesheet](#)
[XML Templates](#)
[XMI Models](#)
[Ontologies](#)

News
[SPASE in the literature](#)
[Briefs](#)

!!What's SPASE?

metadata format developed by international consortium to comprehensively describe research resources regarding heliospheric and magnetospheric satellite observations

- closely related to STP and upper atmosphere researches (□ easy to use as a base format)
- new metadata elements & words appendable (□ customizable according to our data)
- widely-used in VxOs (□ possible metadata exchange in the future)

IUGONET's modifications

- additional words to represent non-digital archives
- additional words to represent heliospheric coordinates
- new metadata elements to describe observation location & range

Metadata of Numerical Data

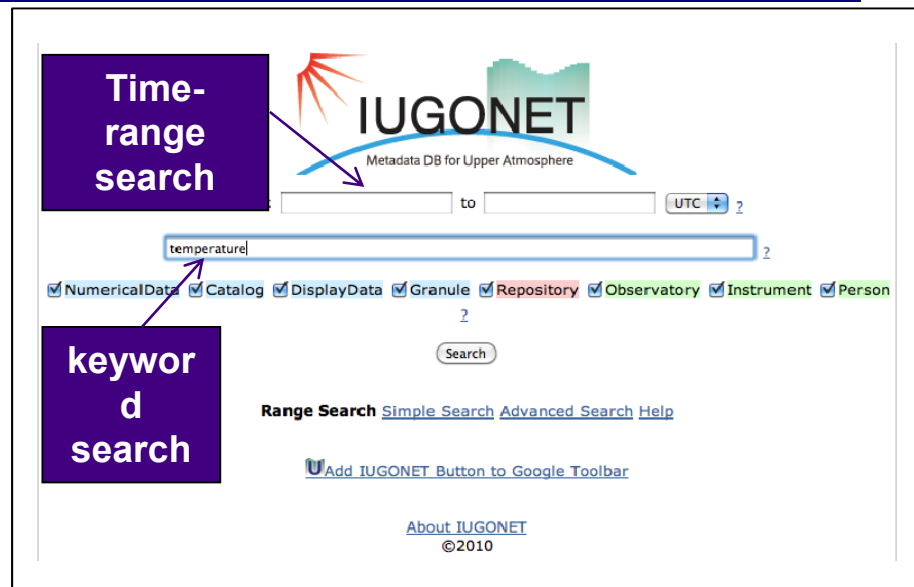
ResourceID: space://IUGONET/NumericalData/EAR/RAO/EAR/trop_std_netcdf
ResourceHeader:
ResourceName: EAR standard tropospheric observation mode
ReleaseDate: 2010-04-12
Description: Zonal, meridional, vertical winds, beam echo intensity, and spectral width data taken by the EAR operated in the standard ...
Acknowledgement: If you acquire EAR data, we ask that you acknowledge us in ...
Contact:
PersonID: space://IUGONET/Person/EAR.Management.Group
Role: General Contact
AccessInformation:
RepositoryID: space://IUGONET/Repository/RISH/RISHDB
Availability: Online
AccessRights: Open
AccessURL:
URL: <http://www.rish.kyoto-u.ac.jp/ear/data/index.html>
Format: NetCDF

...

- Metadata of instrument, observatory, person, repository also created
- Each metadata file written in XML

Prototype of MDB system is being developed by an existing repository software (**DSpace**).

- able to register, search, collect, and provide metadata
- able to handle arbitrary metadata formats
- free, and widely used (e.g. digital university repositories)



Search Results

Search: All of DSpace | Time from: | to: | UTC | ?
for: temperature
[x] NumericalData [x] Catalog [x] DisplayData [x] Granule [x] Repository [x] Observatory [x] Instrument [x] Person

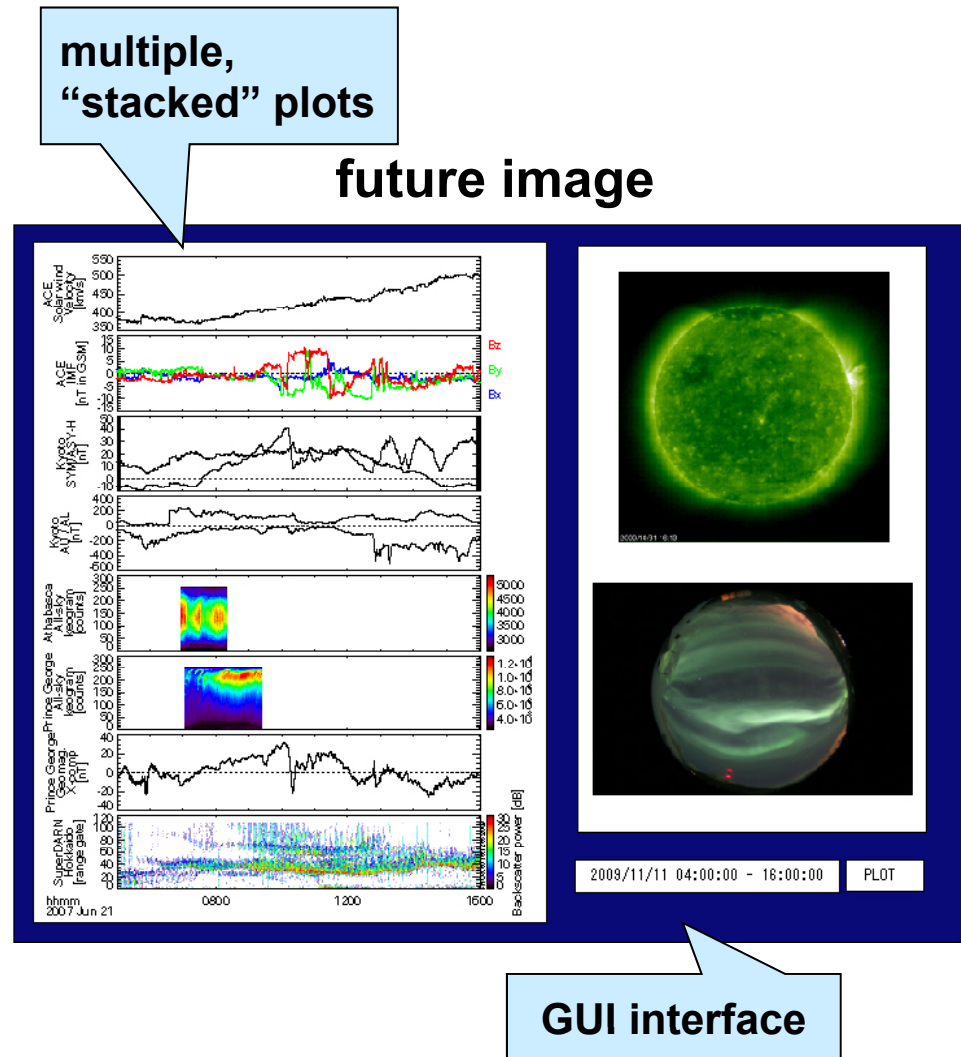
Results 1-10 of 35.
Results/Page: 10 | Sort items by: Relevance | In order: Descending | Update

Item hits:

ResourceID	Resource Type	Description
spase://nssdc/NumericalData/ISCE/00321	NumericalData	ISCE 2 FPE plasma ion parameters 1977-10-26T00:00:00-1980-04-08T00:00:00
spase://VHO/NumericalData/WIND/SWE/H5_PT12S	NumericalData	WIND/SWE Electron Quadrature Moments Parameters (12-15s rate) (New Mode) 2002-08-16T00:00:00Z
spase://VHO/NumericalData/Ulysses/MAGandPLS/PT:1H	NumericalData	Ulysses hourly merged magnetic field and plasma data 1990-10-25T00:00:00-2008-10-

Metadata list

- Development of analysis and quick-look software for our observation data has just started, in collaboration with the ERG Science Center.
- The software will be produced with the THEMIS science Data Analysis (TDAS) IDL libraries and be functioned on the free IDL Virtual Machine.



- The “**IUGONET**” project will develop a **metadata DB** to facilitate efficient use of the upper atmospheric data, and thereby to promote interdisciplinary, comprehensive studies.
- Current development status :
 - Metadata DB system is being developed on the basis of **DSpace**.
 - Metadata format has been determined - **SPASE** with some modifications.
 - Analysis software will be developed with **TDAS IDL** libraries.
- The IUGONET metadata DB will surely contribute to promotion of many research projects (e.g. CAWSES-II Escience and informatics, Asia-oceanian MLT radar network, etc.)

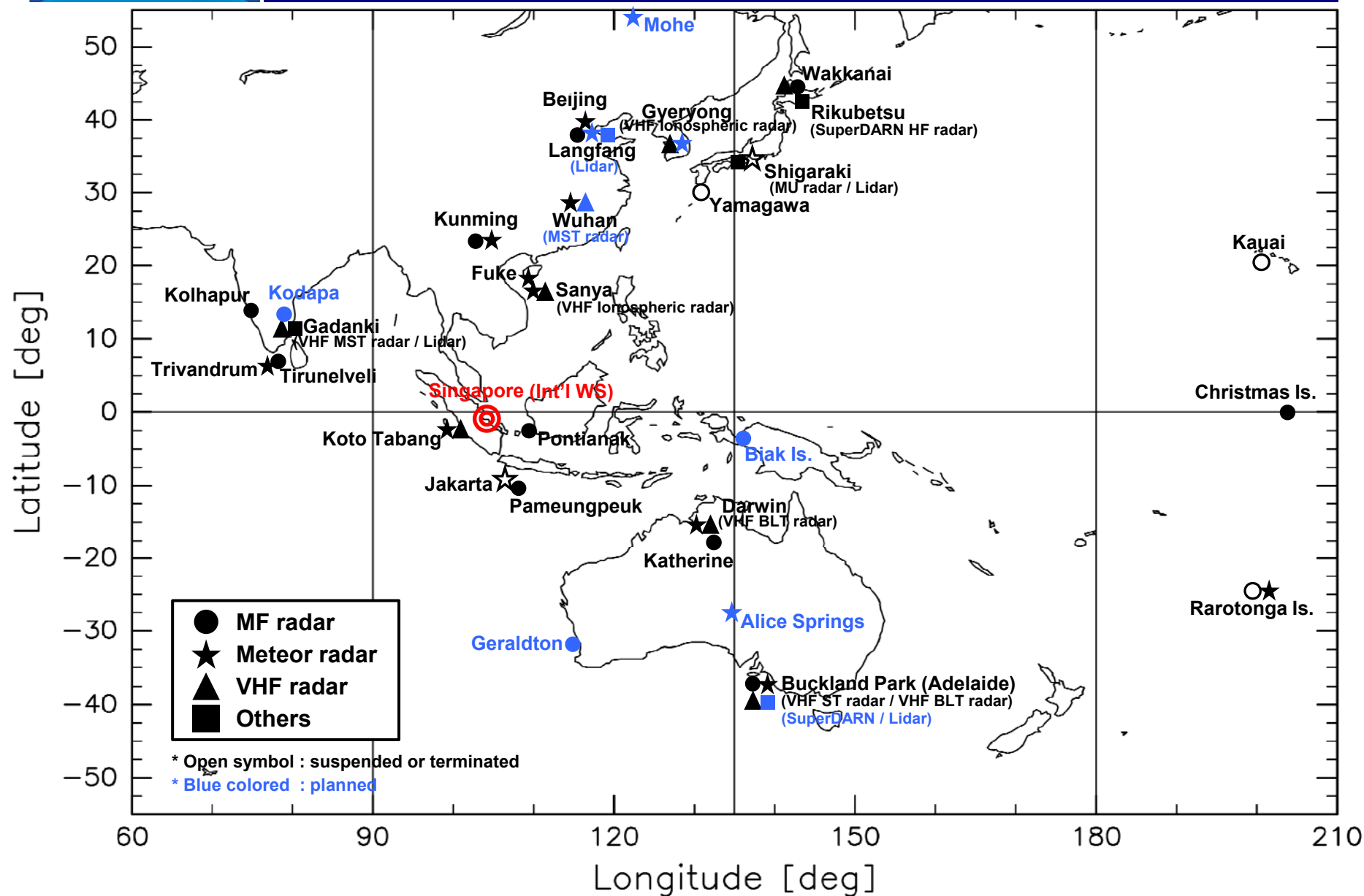
MLT Radar Workshop

Regional CAWSES-II MLT Radar Workshop

~ Singapore, 8 & 9 March 2010 ~



Asia-oceanian MLT radar network





More info about IUGONET

● IUGONET homepage <http://www.iugonet.org/en>

